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PSYCHOPATHOLOGY OF PERCEPTION

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ADVENTURES WITH REPETITION: THE
SEARCH FOR ITS POSSIBILITIES**by* D. EWEN CAMERON, M.D.†

S EVEN YEARS AGO WE STARTED OFF on a series of adventures in pursuit of repetition, a thing as everyday, as strange as a raindrop. Some things are so common, so inlaid into the fabric of our days, that they can pass us by in a thousand forms and yet never catch our thought. Only the most determined and somewhat dryly rewarding efforts bring us to wonder, for instance, at that extraordinary thing which is gravity. We use it each moment of each passing hour. Every house is in part an anti-gravity structure, as is every chair, and throughout the day, we make use of anti-gravity in our postures.

The same is true of friction. How little we know of it—how much we use it. The car moves forward on the road. The girl does not slip off the edge of the bed. And friction is the reason for each of these things and countless more besides. But certainly it is only quite rarely that we think of this strange universal force that has touched our every action since first we counted time.

So it is with repetition. We don't think much about it because we are far more concerned with the uniqueness of events—with the beginnings of things and sometimes with their endings—and rarely is our attention held by their continuous repetition. It is true, of course, that we make use of it in rote learning and we also know something of its consequences in conditioning. Every now and again, however, some little change, often minute, clicks into action and shifts the way in which things ordinarily run. Then for a fleeting moment we are free to stir and look through the rent in the curtain of the world of things as we currently believe them to be and see into another quite different world of things as they might be—if we choose to see them differently.

*Presidential Address

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There are many such worlds. Some are completely different from ours—radically, complexly different, interlocking in their differences so completely as to form consistent wholes, built as each believes, on the most obvious self-evident truths that no one in his senses would think of questioning. There stands the vanishing world of the Navahjo, of the Yoruba, the Easter Islander—in a word, of every culture in the world.

Turning to a smaller section of our world of things as they are, we have come to feel that some of our concepts of ourselves would have to be changed if we reconsider them in terms of the part played in human behaviour by repetition.

Very often, as you know, some of these twists and changes in the way we think about things come out of the blue, but other times you can see them linked up with some specific event in our days. I take the last century or so as being "our days." These twists very often follow upon the development of some new form of instrumentation. We have had to thrust into our hands a most extraordinary range of instruments. Every sensory organ that we have now has added to it a quite magnificent array of prosthetic agents. We can see into and hear from regions which are absolutely closed to our unaided powers. We can perceive temperatures, radiations, vibrations, utterly beyond the range of our natural sensory equipment.

At the intellectual level, the giant computers manipulate in a moment a number and range of symbols far beyond the capacity of 1000 men.

The instrument that started us off on our adventures is quite simple. It was known as far back as the time of Edison: that is a means of preserving and reproducing sound. However, in the last several decades, this has become vastly improved until we have the extremely simple, accurate and clear, tape recorder. Now these tape recorders almost spell out the word repetition.

Many of us quite early were impressed with the wealth of material which could be rescued from immediate oblivion through the tape recorder—the shifts in cadence, the tiny blocks, the changes in speed and emphasis; the world of non-verbal auditory communication could be recorded, and indeed there has been some indication that there may be a whole universe of non-verbal communication carried on below the perceptual level.

In 1953 I was working as I had for some years with a tape recorder during a period of psychotherapy. The patient was a blonde

and sultry girl from Bermuda whom I roundly suspected of incestuous, but carefully covered up, feelings for her father. He would wait up for her, she would come home late. She would undress noisily. He would come in. He would pour out angry accusations. She would become furious. He would hit her. She would grapple with him. Both would fall to the floor and engage in what was outwardly a furious—but I believed mutually enjoyed—scuffle from which both emerged exhausted. The father on the surface was the stern parent, the girl the outraged adolescent. I made many fruitless attempts to get her frankly to agree that all was not as it seemed.

Eventually one hot and sticky summer afternoon she said a few words which seemed to tell what I was seeking. The recorder was on and so with great satisfaction I played it back to her and said, "There!" To which she replied, "There nothing!" I was exasperated and thought to myself, "You will hear" and so I played back these few sentences ten, twenty, thirty times, turning the switch of the machine rapidly back and forth. As I watched her, she grew more and more disturbed, angrier and angrier, and eventually she jumped off the couch: "You're a damn fool." She ran out of the Institute and down the avenue and was retrieved with some difficulty.

I was immensely struck by this and wondered for days why many repetitions of this statement should have an effect that the initial utterance did not. Now ordinarily such things don't shape themselves up as puzzles at all. We just take for granted that nobody wants to go on listening to the same thing. But why not? Heaven knows our breathing is repetitious enough and our walk is simply a fall from one foot onto the next endlessly repeated.

There seemed no answer to the question, so I repeated this procedure with all the other patients I had in psychotherapy and got much the same thing—discomfort, aversion, embarrassment and resentment. And indeed I even noticed in myself a reluctance to do this—I felt that I was being unkind, insensitive, imperceptive—that in a word one simply didn't do this sort of thing to people. For these reasons, namely, the patient's feelings and my own, I felt increasingly sure that there must be something of importance lying hidden. Eventually—as so often happens when one goes on repeating and repeating an experiment—an additional thing occurred which threw a flood of light on the whole matter.

This observation was a statement by one patient that he could not get the sentences, which we had played back, out of his mind for the

whole week that intervened until his next therapeutic hour. He said, "I kept thinking about it. It came back to my mind on the most unexpected and undesired occasions". I then looked over the other cases and saw what had hitherto been missed, namely, that both things which he pointed to had occurred in them also, though in quite varying degree. First they had tended to keep on thinking about the sentences that had been played back to them so often. At times they had noticed a change in the way they had thought about the topic, and nearly always they had found that new recollections had come into awareness. Indeed, for some people it was almost as though the topic we had lit up by repetition had started to blaze out like a fire blizzard, drawing in with greater and greater rapidity more and more recollections of a related nature.

In our early experiments, we used the term 'dynamic implant' to denote the repetition material we used. Actually at this time we were implanting nothing. We were simply lighting up a topic already encoded by the patient's memorial processes.

These observations only served to sharpen up the enigma. Repetition, was so clearly beneficial to the individual and yet it was something to which he showed a most definite aversion. And indeed we knew it to be much more than a simple aversion, for in the meantime we had shifted from excerpts taken from the patient's communication in psychotherapy to the exploration of what would happen if we attempted to establish behavioural patterns by repetition of signals of our own devising. The connection between this and our early observations was simple enough. Seeing that the patient did change and for the better following repetition of his own statements, would he not change more decisively and in a more controllable way if we set up the statements ourselves? By this time we were calling them 'verbal signals' and, for convenience of discussion, we were calling the procedure 'psychic driving'.

Driving it was, since clearly if this thing worked after thirty repetitions, it was only common sense to see what would happen if the repetition was increased tenfold, a hundredfold or even more. And eventually our patients were listening to verbal signals we had set up ourselves on the basis of our knowledge of the patient, and listening from 6 in the morning until 9 at night day after day and week after week.

We very soon found, however, that it did not work out quite as we had planned it, and the patient's aversion was now reinforced by his

capacity to protect himself against the impact of repetition. Amazing though it may sound, my colleagues and I—Dr. Levy, Dr. Ban and Mr. Rubenstein—found it was possible for the individual to be exposed to the repetition of verbal signals, such as I have described, a quarter to one-half million times and yet be unable to repeat these few short sentences at the end of this extraordinary large number of repetitions. In other words, the individual has a means of blocking the effects of repetition.

When we explored the literature on repetition, we found to our interest that at the physiological level too, the organism protects itself against the effects of prolonged repetition. The neurophysiologists have discovered a number of mechanisms which operate to produce what they call 'response decrement'. In other words, mechanisms which result in a response to a stimulus becoming progressively less with repetition—thus protecting the organism against damage that might result from too frequent repetitions.

These observations then led us to another long period of conjecturing, reading up on other men's experiences and their thoughts about them. Eventually we came to the working hypothesis that repetition is an exceedingly powerful force. Everywhere you look at living things you will find that repetition is used and at the same time the living creature protects itself against excessive exposure to repetition. In the human subject, this is particularly necessary because no creature is as rapidly and as extensively adaptive as is the human being. Hence, while it is of immense value to use repetition—and we do use it in rote learning, conditioning, habit formation, in the structuring of work schedules and in many other ways—at the same time we must protect ourselves against repetition lest it force us into adaptation which we do not wish. Every human being has a greater or lesser urge to go on being himself—to preserve his identity—and this is no less true of the neurotic than of the normal person—so he must protect himself against disturbing reorganizations in his thinking and his feelings.

We now found ourselves squarely facing the next chapter in our pursuit of repetition. How could we block the mechanisms which the human being sets up to protect himself against adaptation and thus ensure that our driving statements would enter and become established as new patterns of behaviour?

At this point, as so often happens in a long research, we took a wrong turning and continued to walk without a glint of success for a long, long time. I won't recount to you all the things we tried to do

to stop the working of these mechanisms of defense against repetition. Let me simply say that we vastly increased the number of repetitions to which the individual was exposed, that we continued driving while the individual was asleep, while he was in chemical sleep, while he was awake but under hallucinogens, while he was under the influence of disinhibiting agents. We tried driving under hypnosis, immediately after electroshock, we tried innumerable combinations of voices, of timing and many other conditions, but we were never able to stop the mechanisms.

Other lines of our research were however showing successes. We were now able to produce desired changes in almost every patient that we tried, but these changes always took, we felt, far too long and many of them were far too unstable. But we had begun to notice that where our patients, after driving, took their new-found behaviour patterns back to homes in which there was plenty of support, enthusiasm for the new change and a good deal of understanding, these patterns became long lasting and finally established. But where, on the other hand, the home was a disturbed and destructive one, the patterns quite soon disappeared. From these observations, we developed the idea of primary and secondary reinforcement leading to consolidation.

Primary reinforcement was carried out in the institute by the nurses and the doctors giving praise and expressing enthusiasm for the newly appearing behavioural patterns. Secondary reinforcement was the name which we gave to long-term followup of these patients—having them come back and listen once or twice a week to their driving in the Out-Patient Department, and also consisted in the instruction of the relatives regarding the desirability of giving acceptance to the patient's new way of doing things.

We went further than this and began to recognize something which we had already seen from studies in other related fields. In this field which I am discussing with you tonight, you will readily see that what we are trying to do is to set up in the memory systems of the individual new behavioural patterns. In another area, we have found it expedient to try to destroy pathological behavioural patterns held in the memory storage systems. This we do by depatterning. And once we had extended our depatterning to chronic neurotic patients, we began to recognize the very important part played by the neurotogenic home in maintaining neurotic behavioural patterns. And this idea we carried over into the area of psychic driving. To give expression to the idea we set up a plan whereby our patients were placed in other

homes for 6 weeks to 3 months after discharge. It might be that these other homes also had neurotogenic factors, but they were not the factors to set into operation the particular neurotic tendencies of our patients and, hence, consolidation of the new behavioural patterns could take place.

At the outset of my talk tonight, I indicated that these studies on the effects of repetition had provided us with new ideas. Some of these ideas, as you can see, we translated into procedures, but others have been translated into new theoretic concepts. One of these is that recovery is not always a matter of the resolving of a conflict. Indeed with passing time, we have begun to wonder if this is actually a very realistic concept and how well grounded it is in experimental data. Certainly from our experience we can say that much of recovery is really due to acquisition of dominance within the patient of what are considered to be normal behavioural patterns.

We have postulated the idea that every personality trait which is dominant has also a contra-trait which is sub-dominant. Where the individual is prudent and cautious and conservative, we may be reasonably sure that this trend has been set up by the suppression of urges to be impulsive, to be rash and to be reckless and that these impulses still remain although sub-dominant.

And the same thing we have thought is true of the individual who has dominant characteristics of aggressiveness, sadistic behaviour and a disregard for others. Submerged beneath, we think there are contra-traits composed of urges for closer relationships with others, for belongingness rather than independence and for the exchange of affection and tenderness.

In part, we are inclined to think that driving serves to activate these contra-traits—but however only in part—since as you will hear later, we have succeeded in developing traits to which it seems most unlikely that there are contra-traits.

May I now return to our long wandering in the wilderness in search of a means directly to overcome the mechanisms which the individual sets up to block the effects of repetition. It was only within the last year that we turned away from this pursuit and began to seek a totally different solution and this was by developing means of involving the patient in listening to the statement. In this way we got him to do the work of setting aside his own blocking agents rather than our trying to force them.

Quite early in our experiments we had carried out a series of studies

on the nature of talking and on the nature of listening. It had become quite clear to us that complete attention was far from what we wanted. Because complete attention simply means complete absorption with reception. What we wanted from our patients—and I think what many speakers want from their audiences—was attention. When a man attends and thinks, he naturally doesn't hear as much as the man who merely listens, as part of the time he is engrossed in his own thinking of some aspect of the problem that his attention to the speaker has started up. The fact that his attention under these circumstances was necessarily incomplete did not trouble us however, as with the vast number of repetitions, the patient was bound to attend to every aspect of the statement if not the first time round, at least the one thousand and first time round. And his thinking and feeling—in a word, his involvement—is fundamentally what brings about reorganization.

If you look through the psychological literature, you will find that the phenomenon which we call 'involvement' has not been dealt with by anyone, but this is what we have found to be the most desired response and it is the kind of response that has gotten us past the operation of the blocking mechanisms.

How were we to know that we were actually getting this involvement? This proved easy enough. Instead of running repetition continuously from 6 in the morning until 9 at night, we now decided to give recognition to the fact that the response we wanted from the patient called for far more active work than required by passive attention or, as it more commonly turned out to be, continuous blocking. So we cut down the driving periods to about 4 hours a day—2 hours in the morning, 2 hours in the evening. Moreover, we set the continuous tapes up in such a way that they were run for about 4 minutes and then there would be a period of silence of about 6 minutes and the cycle would repeat itself throughout the 2 hours. During the 6-minute period, we asked the patient to write down everything that he had thought about or was thinking about in consequence of the signals he had heard, and this written material was handed in so he could have a pretty good idea of how much involvement was going on.

A still more important question of course is how did we know that we were getting any change in the behaviour of the individual? Here, as you know, we are getting into one of those vastly important areas of the human sciences which has never been very satisfactorily organized. How do we measure change in behaviour and how can we relate it to specific causal events? Our verbal signals portrayed certain

changes of a desirable nature which we hoped the patient would incorporate—that he would become more assertive; that he would become more confident; that he would become free of his anxiety; that he would mature and take responsibilities; that he would show more drive and enterprise. It is of course not too difficult to demonstrate that this was achieved. We have had growing success over the years in just this direction, and relatives and patients and employers and social workers and nurses and the ward staff themselves have agreed that just such changes appeared in our patients. In order that there would be as little doubt about it as possible we would take movies before and after, we would run psychological batteries before and after, some of them being self-rating, others involving ratings by a psychologist.

However, an awkward thought kept recurring to us, namely, that these changes are to some extent although not completely the changes which might appear in almost anyone on recovery from a neurosis. We felt that we must find some more objective measure of the effects in repetition in changing behaviour. We chose to add a tracer to our driving signals. This would be something that had nothing to do with getting better or showing improvement in performance. It was at the same time clear that this tracer—if it were to show itself—would have to contain some urge to action, and hence we called such signals 'imperative tracers.' The tracer if incorporated shows itself in action within the first week after exposure to repetition.

Our first imperative tracer which we used 3 or 4 years ago consisted in a statement, "You like to be close to other people. You like to reach out and touch them." And, sure enough, it happened not in all, but in a number. In some patients it disappeared within a few days. In others, however, it persisted for an embarrassingly long period of time and apparently was sustained by secondary gain. Eventually we came to feel that we should find an imperative tracer having fewer social consequences. Our present imperative tracer—involving picking up pieces of paper—is very simple. It usually appears within the first week after exposure and disappears quite quickly after cessation of the driving, since it is rare that the patient finds any secondary gain to reinforce it.

Now we come to the last in a long series of adventures in our search for the effects of repetition. I mentioned to you a little while ago our deep interest in involvement. This, as you can gather resulted in a great deal of written material which we read. But before discussing this, may I divert for a moment to say that in the last 2 or 3

years we have been dividing our driving statements into what we call negative signals and positive signals, both kinds being specifically designed to evoke the appropriate psychotherapeutic mechanisms. The negative signals consisted essentially of all the criticisms that the patient had made of himself or heard made of himself. These we started with in each case and the patient at first accepted them as being only too true. But in the course of a few days, he would begin to express some doubts as to whether things were really quite as bad and finally he would show a growing resentment and rejection. When this point was reached in about 10 days, we would regard it as the point of maximum intensity, and we would shift to the positive driving statement, reflecting the aspirations of the patient—what he wanted to become.

Now to go back to the written material which the patients produce, we began to realize that actually the negative driving signals set in motion certain of the mechanisms of psychotherapy—problem identification, desensitization, the beginnings of the patient-therapist relationship and sometimes the development of explanation. The positive driving signals, on the other hand, showed a great deal of the principle of reorganization, much of the development of explanations and a maturing of the patient-therapist relationship.

And may I add that in order that this new procedure of involvement may be as productive as possible, we have begun to drive these statements while the patient is under the influence of sodium amytal and desoxyn. The amount of material which some patients bring out under these circumstances is really tremendous.

So now we have actually two main ways of using repetition. The first is to produce direct reorganization exemplified by the creation of the habit of picking up pieces of paper and the account of the extensive changes in personality brought about by the positive signals. The second is an indirect method of producing reorganization by bringing into play the mechanisms of psychotherapy.

In this long recital of our quest after the effects of repetition on behaviour, I have shown you a few of the exciting new things which can be discovered. I have also shown you some of the side roads which one might take leading into quite different fields, and I have shown you one or two which lead apparently into a sterile wilderness.

We are still far away from being able to set up the truly compelling patterns of behaviour which sometimes occur naturally as, for instance, in the sexual patterns of behaviour, nor can we set up patterns with

anything like the durability that one finds in some habits or in imprinting in animals, but we have made a beginning.

I feel quite confident that the journey if continued with hopefulness and a touch of serendipity is one that will interest and stimulate and has much greatly to reward the determined traveller—and ultimately the patients for whom all such travels are undertaken.

APPENDIX

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